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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/673.992

09/29/2003

Edward Harris Tegge JR.

GCSD-1421 (51342)

2823

27975

7590

09/18/2006

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EXAMINER

SINGH, DALZID E

ART UNIT

PAPER NUMBER

2613

DATE MAILED: 09/18/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/673,992	TEGGE ET AL.	
	Examiner	Art Unit	
	Dalzd Singh	2613	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 September 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-48 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-12,25-32 and 41-48 is/are allowed.
- 6) ☒ Claim(s) 13-24 and 33-40 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 23 and 40 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 23 and 40 recites the limitation "said interchangeable OR module". There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 13, 14, 18-22, 24, 33, 34, 38 and 39 are rejected under 35 U.S.C. 102(e) as being anticipated by Shelton et al (US Pub. No. 2004/0141752).

Regarding claim 13, Shelton et al disclose a modular free space optical (FSO) communications device comprising:

an adaptive optics (AO) module (315) comprising an AO housing and at least one AO device carried thereby (see Fig. 3; it is inherent that the optical device comprise housing in order to provide protection from environmental conditions); and

an optical relay (OR) module (305) comprising an OR housing and a fixed telescopic lens device (310) having a predetermined focal length range carried by said OR housing (see Fig. 3; it is inherent that the optical device comprise housing in order to provide protection from environmental conditions);

said OR housing and said AO housing being connectable and establishing an optical path between said at least one OR device and said at least one AO device when connected (as shown in Fig. 3, the housing for the optical devices are connected in order to establish optical path; signal received by the optical relay (305) is reflected to the lens (310) and further to the adaptive optic (315)).

Regarding claims 14 and 34, a base module connected to said AO module for providing relative movement between said base module and said OR module for optical beam aiming (AO module (315) provide relative movement; see paragraph [0030]; since adaptive optic changes geometric shape of deformable mirror and not base supporting it, therefore, it is inherent that movement of the adaptive optic is relative to the base supporting it).

Regarding claims 18 and 38, as shown in Fig. 3, Shelton et al show at least one OR device comprises a fixed telescopic lens device (310).

Regarding claim 19, as shown in Fig. 3, wherein said OR housing has an aperture therein (it is inherent that there exist aperture); and further comprising a steering mirror (305) in the optical path between the aperture and said fixed telescopic lens device (310).

Regarding claim 20, as shown in Fig. 3, wherein said AO module further comprises an optical fiber interface (342) in the optical path.

Regarding claim 21, as shown in Fig. 3, wherein said AO module further comprises a beam splitter (330) in the optical path; and a wavefront sensor (325) downstream from said beam splitter and connected to said at least one AO device.

Regarding claims 22 and 39, wherein said at least one AO device comprises a deformable mirror (315) and a controller (320) connected thereto.

Regarding claim 24, it is inherent to provide a seal for sealing a joint between said OR housing and said AO housing in order to prevent dirt or water from entering.

Regarding claim 33, Shelton et al disclose a free space optical (FSO) communications system comprising:

first and second modular FSO devices aligned for optical communication therebetween (see Fig. 2), each comprising an adaptive optics (AO) module (220) comprising an AO housing and at least one AO device carried thereby (see Fig. 3; it is inherent that the optical device comprise housing in order to provide protection from environmental conditions), and an optical relay (OR) module (305) comprising an OR housing and a fixed telescopic lens device (310) having a predetermined focal length

range carried by said OR housing (see Fig. 3; it is inherent that the optical device comprise housing in order to provide protection from environmental conditions), said OR housing and said AO housing being connectable and establishing an optical path between said at least one OR device and said at least one AO device when connected (as shown in Fig. 3, the housing for the optical devices are connected in order to establish optical path; signal received by the optical relay (305) is reflected to the lens (310) and further to the adaptive optic (315)).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 15-17, 23, 35-37 and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shelton et al (US Pub. No. 2004/0141752) in view of Arnold et al (US Patent No. 6,347,001).

Regarding claims 15 and 35, as discussed above, it is inherent to provide base module and housing to the system of Shelton et al. Shelton et al differ from the claimed invention in that Shelton et al do not disclose at least one positioner carried thereby. Arnold et al teach the use of positioner to provide desired position of the optical communication device (see Figs. 3 and 4; col. 5, lines 57-67, col. 6, lines 12-31,

col. 7, lines 16-20). Therefore, it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to provide positioner to the free space communication device of Shelton et al as taught by Arnold et al. One of ordinary skill in the art would have been motivated to do such in order to provide alignment between communication devices.

Regarding claims 16 and 36, wherein said base module further comprises a controller for controlling said at least one positioner (it is well known that there exist controller to provide proper positioning of the optical device).

Regarding claims 17 and 37, the combination teaches control of the positioner and differs from the claimed invention in that the combination does not specifically disclose a remote station interface connected to said controller for permitting remote control of said at least one positioner. However, it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to provide a remote station interface to control the positioner.

Regarding claims 23 and 40 (in view of the 112 2nd paragraph rejection), Shelton et al disclose free space optical communication and differ from the claimed invention in that Shelton et al do not disclose a camera. Arnold et al teach the use of camera with the free space optical communication system (see col. 6, lines 39-41). Therefore, it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to provide camera to the system of Shelton et al as taught by Arnold et al. One of ordinary skill in the art would have been motivated to do this in

order to provide viewing.

Allowable Subject Matter

7. Claims 1-12, 25-32 and 41-48 are allowed.
8. The following is a statement of reasons for the indication of allowable subject matter:

Claim 1 is allowed because the prior arts of record do not teach or disclose a modular free space optical (FSO) communications device comprising:

an adaptive optics (AO) module comprising an AO housing and at least one AO device carried thereby; and

an interchangeable optical relay (OR) module comprising an OR housing and at least one OR device carried thereby;

said at least one OR device of a given OR module providing a predetermined focal length range from among different focal length ranges for respective OR modules;

said OR housing and said AO housing being interchangeably connectable and establishing an optical path between said at least one OR device and said at least one AO device when connected.

Claim 25 is allowed because the prior arts of record do not teach or disclose a free space optical (FSO) communications system comprising:

first and second modular FSO communications devices aligned for optical communication therebetween, each comprising an adaptive optics (AO) module

comprising an AO housing and at least one AO device carried thereby, and an interchangeable optical relay (OR) module comprising an OR housing and at least one OR device carried thereby, said at least one OR device of a given OR module providing a predetermined focal length range from among different focal length ranges for respective OR modules, said OR housing and said AO housing being interchangeably connectable and establishing an optical path between said at least one OR device and said at least one AO device when connected.

Claim 41 is allowed because the prior arts of record do not teach or disclose a free space optical (FSO) communications method comprising:

providing an adaptive optics (AO) module comprising an AO housing and at least one AO device carried thereby;

selecting one of a plurality of interchangeable optical relay (OR) modules based upon a desired focal length range, each OR module comprising an OR housing and at least one OR device carried thereby, and each at least one OR device of a given OR module providing a predetermined focal length range from among different focal length ranges for respective OR modules; and

interchangeably connecting the OR housing and the AO housing to establish an optical path between the at least one OR device and the at least one AO device.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Sakanaka et al (US Patent No. 5,594,580) is cited to show optical space communication apparatus.

Graves et al (US Pub. No. 2004/0156638) is cited to show atmospheric optical data transmission system.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dalzid Singh whose telephone number is (571) 272-3029. The examiner can normally be reached on Mon-Fri 9am - 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on (571) 272-3022. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

DS
September 13, 2006

David Singh